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Site 6002 (Boreal Stand 2). 1954-07-04

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Plant Ecology Research
TREE DATA SUMMARY SHEET

University of Wisconsin

243.6

Spruce-fir
~~Northern Pine-Hardwoods~~

[= Site 6002]

Station Number: 2 - 1652

Mid Range
IndexN. Limit
Index

591.3

13.8

383.0

822.0

82.0

14.0

585.9

6.0

125.6

8.0

3.0

14.4

3.0

2652

TREE	# PTS	# TRS	DOM. CLASSES			TOT. DOM.	# SAP	D. % SAP	F. % SDL.	F. % TRS.	% SUM F. TR.	D. % TRS.	DOM% TRS.	DFD INDEX	C. I.
			-80	-320	321										
Abies bals	31	46				1123	97	60.6		77.5	27.4	28.7	9.6	65.7	459.9
Acer rubru															
A. sacchar															
A. spicatu															
Betula lut	1	1				95	3	1.9		2.5	0.9	0.6	0.8	2.3	18.4
B. papyrif	17	19				1338	3	1.9		42.5	15.0	11.9	11.4	38.3	191.5
Carpinus c															
Fagus gran															
Ostrya vir															
Picea glau	27	41				3829	33	20.6		67.5	23.9	25.6	32.6	82.2	493.2
Picea mar. Pinus-Bank	4	5				182	15	9.4		10.0	3.5	3.1	1.5	8.2	16.4
P. resinosa	1	1				56				2.5	0.9	0.6	0.5	2.0	6.0
P. Strobus	24	37				4618	1	0.6		60.0	21.2	23.1	39.4	83.7	418.5
Populus ba															
P. grandid							1	0.6							1.0
P. tremulo	7	9				453	5	3.1		17.5	6.2	5.6	3.9	15.7	31.4
Prunus pen							1	0.6							1.0
Prunus serot Quercus ed							1	0.6							1.0
Q. rubra															
Tilia amer															
Tsuga cana															
Thuja occi	1	1				39				2.5	0.9	0.6	0.3	1.8	12.6
Ulmus amer															
U. fulva															
Amelanchier sp															1.0
TOTALS		160				11,733	160	100.0		282.5	100.0	100.0	100.0	300.0	1652

525.6

11.5

344.7

822.0

82.0

12.0

502.2

1.0

141.3

1.0

1.0

12.6

1.0

2458

AVE. DIST. BTW'N TREES:

12.54'

AVE B. A.:

73.359"

TREES/ACRE:

277

DOM./ACRE:

20,312

STAND #2	No.	No.	Size Class Sq. In.		No.	F.%	F.%	D.%	Dom.%	D F D	Station No.		
Tree	Pts.	Tr.	12-80	81-320	Dom.	Sap.	Seed	Seed Tr.	Tr.	Trees	Index		
✓ ABIES BALSAMEA	31	46	46 45	1	1123	97	6	35.3 30	77.5 (27.4)	28.75	9.57	65.72	
ACER PENSYLVANICUM												Total Length of Transect 3600'	
✓ ACER RUBRUM							3	17.7 15				Total Length of Transect	
✓ ACER SACCAHRUM <i>saccharum</i>												Ave. Dist. Btw Trees 12.54'	
ACER SPICATUM													
✓ BETULA LUTEA	1	1		1✓	95	3			2.5 (0.9)	0.62	0.81	2.33	
✓ BETULA PAPYRIFERA	17	19	15 12	4 7	1338	3			42.5 (15.0)	11.88	11.40	38.28	
FAGUS GRANDIFOLIA												Saplings/unit- area 178	
FRAXINUS AMERICANA												Ave. BA (Total BA: 80) 73.33 sq"	
FRAXINUS NIGRA													
LARIX LARICINA												No. trees/acre 277	
OSTRYA VIRGINIANA												Dom./acre 20,312	
✓ PICEA GLAUCA	27	41	20 13	20 27	1✓	3829	33	1	5.9 5	67.5 (23.9)	25.63	32.63	82.16
✓ PICEA MARIANA	4	5	4 5	1		182	15	1	5.9 5	10.0 (3.5)	3.13	1.55	8.18
✓ PINUS RESINOSA	1	1	1✓			56			2.5 (0.9)	0.62	0.48	2.00	
✓ PINUS STROBUS	24	37	8✓	28	1	4618	1		60.0 (21.2)	23.13	39.36	83.69	
POPULUS BALSAMIFERA													
✓ POPULUS GRANDIDENTATA							1	1	5.9 5				
✓ POPULUS TREMULOIDES	7	9	7✓	2✓		453	5	5	25 29.4	17.5 (6.2)	5.63	3.86	15.89
✓ PRUNUS SEROTINA							1						
✓ PRUNUS PENSYLVANICUM							1						
✓ PYRUS AMERICANA													
✓ THUJA OCCIDENTALIS	1	1	1✓			39			2.5 (0.9)	0.62	0.33	1.85	
TILIA AMERICANA													
ULMUS AMERICANA													
ULMUS RUBRA													
✓ TOTALS	113	160	91	67	2	11733	160		(100.0)	100.0	100.0	300.0	

THE UNIVERSITY OF WISCONSIN
MADISON 6, WISCONSIN, U. S. A.

DEPARTMENT OF BOTANY
BIRGE HALL

Test of Homogeneity - Using *Picea glauca*
40 points yielded 41 trees
Expected for each 10 points = 10 trees

Observed.	(1) 13	(2) 7	(3) 13	(4) 8
EXPECTED	OBSERVED	DEVIATION	(DEVIATION) ²	(DEVIATION) ² EXPECTED
10	13	+3	9	0.9
10	7	-3	9	0.9
10	13	+3	9	0.9
10	8	-2	4	0.4
	$\Sigma = 41$	$\Sigma +1$		$\Sigma = 3.1$

CHI SQUARE = 3.1, 3° FREEDOM
PROBABILITY 0.5 - 0.3.

Test of Homogeneity - Using *Pinus strobus*
40 points yielded - 37 trees
Expected = 9 trees

EXPECTED	OBSERVED	DEVIATION	(DEVIATION) ²	(DEVIATION) ² EXPECTED
9	5	-4	16	1.7
9	12	+3	9	1.0
9	10	+1	2	0.2
9	10	+1	2	0.2
	$\Sigma = 37$	$\Sigma +1$		$\Sigma = 3.1$

$\chi^2 = 3.1$ 3° FREEDOM
PROBABILITY 0.5 - 0.3

Total distances for trees - 2006'
 Av. distance (160 trees) - 12.54'

Total distances for saplings - 2497'
 Av. distance (160 saplings) - 15.61'

Frequency. trees	actual frequency	freq. %
<i>Abies balsamea</i>	46	28.75
<i>Picea glauca</i>	41	25.63
<i>Pinus strobus</i>	37	23.12
<i>Betula pop.</i>	19	11.88
<i>Populus trem.</i>	9	5.63
<i>Picea mariana</i>	5	3.12
<i>Pinus resinosa</i>	1	0.62
<i>Betula lutea</i>	1	0.62
<i>Thuja occid.</i>	1	0.62
	160	100.00

Stand # 2 July 4/54

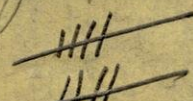
Alys balsamea Len 18'

[illegible]

Prunella laevis
taller than 18"

SW

Les 18




Size from aerial photo approx. 140 acres.

Stand 2.

Situated to West of Campsite road - research area on sandplain at bottom of large ridge. Bounded on east by Camp road, N. - ridge, West - Crooked Creek, S by line passing E + W through N. edge of Bat Lake - Algonquin Park. Stand composed mainly of large pine + spruce, with white birch + trembling aspen. Result of fire with undergrowth of balsam fir - with considerable large trees.

Canopy - average through 202. + - 40%. There are many large white
spruce - 21", 12", 10", 5 1/2", 5 1/2", 11", 11" - measurements of larger white
spruce in the vicinity.

One area has been logged for pine + fir. - as indicated by large pine stumps - charred + presence of birch + aspen

The undercover is mostly hazel + bracken. Most of
regeneration is *Abies balsamea* but there is also some white
spruce. There are considerable rotting logs from logging
operations + many dead balsam - killed by spruce budworm.
Sandplain is a fairly flat undulating plain - fluvial deposit
transect taken was 10' wide

Stand #2 July 4/54

Second transect - 100 paces to south of transect #1 in a SW. direction

Abies balsamea

Over 18"

Under 18"

||||^d
 ||||^d

Picea glauca

Over 18"

Under 18"

W. spruce

14 1/2" 10" 10" 9 1/2" 9 1/2" 7 1/2" 7 1/2" 8" 5 1/2" - measurements of a few larger white spruce at end of 100 paces.

Canopy - average of last 100 paces about 35-30% Same type of shrubby understorey - hazel & bracken. Same type of trees as last 100 paces.

Stand, #2 July 4.

3rd transect - 100 paces to south of transect #2 & continuation
in a S.W. direction 10' transect

Abies balsamea

Over 18"

Muder 18"

White spruce
Over 18" under

under 18"

III



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11

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114

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7111
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W. Spruce

8", 8", 10 $\frac{1}{2}$ ", 6 $\frac{1}{2}$ ", 6 $\frac{1}{2}$ ", 11", 11", 8, 6", 7 $\frac{1}{2}$ ", 8"

A balsam

7", 8", 7"

~~37~~
~~43~~
~~57~~
~~6~~
~~20~~ 82

Undercover - Shrub - hazel - bracken
Herb cover uniform as before.
Canopy - 40%

Stand #2

Fourth transect - 100 paces south of transect #3. in Stand #2

Abies balsamea

Picea glauca

Over 18"

Under 18"

Over 18"

Under 18"

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This transect has been much harder hit by budworm, many more trees - dead on the ground. canopy is much more open - about 15%. There is slightly more balsam regen., fewer birches + aspen.

Large at end

Spice - 11", 9", 5 1/2", 14 1/4", 7", 20"

sd

Data Form No. 84a
TABULATION FORM

Plant Ecology Research
SPRUCE - FIR, SPRUCE - FIR MIXED HARDWOODS

University of Wisconsin
STAND NO. 2

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Lycopodium obscurum (dendroid)
" *lavatum*

Grasses + *Carex* sp.

Cornus canadensis

Corylus cornuta

Abies balsamea

Betula papyrifera

Picea glauca

Picea mariana

Populus tremuloides

Populus grandidentata

Aster macrophyllus

Aralia nudicaulis

Polygala paucifolia

apocynum androsaemifolium

Sonchella canadensis

Rubus idaeus

Pinus strobus

Vacc. myrtilloides

" *angust.*

Amelanchier sp.

Achillea millefolium

Geranium aurantiacum

Prunus - pritchardii

Lycopodium annotinum

Cladonia rangiferina, *gracilis*

Fuentalis borealis

Chrysanthemum leucanthemum

Eriogon philadelphicum

" *white*

Sileneago canadensis

Polypodium virginiana

Pteridium aquilinum

Sycop. lucidulum

Clintonia borealis

Maianthemum canadensis

Dryopteris spinulosa

Striptopus proeus

Desmodium lomara

Rubus pubescens

Salix triflorum

Trifolium repens

Anaphalis margaritacea

Acer rubrum - seedlings

Linnaea borealis

Melampyrum lineare

Pyrola elliptica

Aster nova angliae

Polygonatum pubescens

Prunus crotina

Pinus strobus

Calcegon streptum

Polytrichum juniperinum

Coptis groenlandicum

Dalibarda repens

Petula lutea

Pinus resinosa

Thuja occidentalis

Oxalis acetosella

Spiraea latifolia

Prunus pennsylvanica

Antennaria canadensis

Potentilla norvegica

Gaultheria procumbens

Viola nephrophylla

Polytrichum commune

Lycop. obscurum

Potentilla norvegica

PC	PM	PS	PR	PT	BP	AB.	BL	TO
			1				1	1
	4		1				1	1
				7				
					17			
27		24				1		
						31		

no dead trees considered X

Stand #2 July 11/54 Compass line - 40° SE from original starting point at campsite road + dam road. 30 yds paced off

Quadrat #1 - at Survey point #1 in stand #2

Prunum aquilinum *Vaccinium angustifolium* *Populus tremulodes*
Cornus canadensis *Rubus idaeus*

Aralia nudicaulis

Mercurialis borealis

Aster macrophyllus

Carex sp.

Grass sp.

Maianthemum canadense

Troutalis borealis

Papula elliptica

Rubus pubescens

Valeriana repens

Precedent - Facing in direction of compass line - quadrat in front to the right is #1(a) to right behind #1(b) - to left behind (c) to left in front (d) above 3" is a tree 1-2" sapling

(a) - *Abies balsamea* - 4" ¹³ 8' from point, height - 20' - tree
 - *Abies balsamea* - 1 1/4" 21' " " height - 10' - sapling

(b) - *Betula papyrifera* - 8 1/2" ⁵⁶ 8' " " 40' - tree
 - *Abies balsamea* - 1 1/2" 6' " " 15' - sapling

(c) - *Abies balsamea* - 6" ²⁸ 10' " " 35' - tree
 - *Abies balsamea* - 2" 24' " " 10' - sapling

(d) - *Picea glauca* - 9 1/2" ⁷⁰ 20' " " 35' - tree
 - *Picea glauca* - 1 1/4" 5' " " 9' - sapling

Soil pit dug Litter - 1/2" }
 Humus - 1/4" } A₀

T.D. = 46'

Humus - 1/2"

A₁ - 3/4"

A₂ - 2"

A₃ - 1/2"

Survey point # 2 in stand # 2

- (a) - *Betula papyrifera* - 15" 177 9' from point, height 50', - tree
 - *Abies balsamea* - 2 1/4" 10' " " " 15', sapling
- (b) - *Abies balsamea* - 5 1/2" 24 4' " " " 25', tree
Abies balsamea - 1 1/4" 9' " " " 8', sapling.
- (c) *Picea glauca* - 12" 113 12' " " " 45', tree
Prunus serotina - 2 1/2" 14' " " " 20', sapling
- (d) *Prunus strobus* - 16" 201 5' " " " 35', tree
Abies balsamea - 2 3/4" 11' " " " 25', sapling

T.D. = 30'

Stand #2 July 11/54

Quadrat #2 - at survey point #3 in stand #2

Peridium aquilinum *Abies balsamea*

Comus canadensis

Grass sp.

Lycopodium clavatum

Aster macrophyllus

Polytrichum juniperinum

Trillium boreale

Linnaea borealis

Arabis nudicaulis

Achillea millefolium

Maianthemum canadense

Dahlbarda repens

Carex sp.

(a) - *Picea glauca* - 11" ⁹⁵ 11' from point, height 40' - tree

- *Abies balsamea* - 1" 15' from point, " 8' - sapling

(b) - *Abies balsamea* - 4 1/2" ¹⁶ 10' " " 30' - tree

- *Picea glauca* - 1" 15' " " 6' - sapling

(c) - *Betula papyrifera* - 9" ⁴⁴ 12' " " 55' - tree

Abies balsamea - 13 1/4" ¹¹ 12' " " 10' - sapling

(d) *Abies balsamea* - 5" ²⁰ 10' " " 35' - tree

Picea glauca - 1" 9' " " 9' - sapling

T.O. = 43'

Survey point #4 in stand #2

- (a) *Pinus strobus* - 14" ¹⁵⁴ - 12' from survey point, height 55' - tree
Abies balsamea - 2 1/2" - 34' " " " 25' - sapling
- (b) *Abies balsamea* - 6 1/4" ³² - 18' " " " 25' - tree
Abies balsamea - 2" - 4' " " " 15' - sapling
- (c) *Picea glauca* - 10" ⁷⁹⁶ - 1' " " " 60' - tree
Populus grandident 2 1/4" - 13' " " " 22' - sapling
- (d) *Pinus strobus* - 14" ¹⁵⁴ - 3' " " " 50' - tree
Abies balsamea - 1 3/4" - 24' " " " 17' - sapling

T.D. = 49'

RECORDS & BOND
HOWARD S. STINE

Stand # 2.
 Quadrat # 3 - at survey point # 5
Pteridium aquilinum *Populus grandidentata*
Cornus canadensis
Grasses - sp.
Carex - sp.
Phytolacca purpurea
Cladonia gracilis
Polygala paucifolia
Viola sp.
Lycopodium clavatum
Potentilla - Strawberry leaved - norvegica
Cladonia rangiferina
Aster macrophyllus

- (a) - *Abies balsamea* - 6" ²⁸ 41' from point, height - 40' - tree
 Picea glauca - 2" 38' " " - 10' - sapling
- (b) - *Picea mariana* - 6 1/2" ³³ 27' " " - 30' - tree
 Abies balsamea - 1 1/4" 15' " " - 12' - sapling
- (c) *Abies balsamea* - 4" ¹³ 19' " " - 23' - tree
 Picea glauca - 1" 20' " " - 6' - sapling
- (d) *Abies balsamea* - 6 1/2" ³³ 5' " " - 28' - tree
 Abies balsamea - 2 1/2" 18' " " - 13' - sapling

T.D. = 92'

- Survey point # 6. Stand # 2
- (a) *Picea glauca* - 10" 79 20' from point, height 50' - tree
Picea glauca - 1 3/4" - 5' from point, " 10' - sapling
- (b) *Pinus strobus* - 16" 201 9' " " " 45' - tree
Picea glauca - 1 1/2" - 12' " " " 11' - sapling
- (c) *Abies balsamea* - 9" 64 16' " " " 50' - tree
Abies balsamea - 1 1/4" - 30' " " " 13' - sapling
- (d) *Picea glauca* - 7 1/2" 44 6' " " " 40' - tree
Picea glauca - 2" - 21' " " " 11' - sapling

T.D. = 51'

Stand #2 July 11/54
 Quadrat #4 - at survey point #7.

Cornus canadensis
Corylus cornuta - shrub
Menyanthes canadense
~~*Achillea*~~ *nudicaulis*
Rubus pubescens
Clintonia borealis
Aster macrophyllus
Ficaria
Dalibarda repens
Carex - sp.
Juncus - sp.
Apocynum androsaemifolium
Polytrichum juniperinum
Polytrichum - sp.

113				
(a)	<i>Petula papyrifera</i>	- 12" DBH	- 12' from survey point	height - 45' - tree
	<i>Abies balsamea</i>	- 2" DBH	- 12' "	" " " - 15' - sapling
(b)	<i>Picea glauca</i>	- 12" ¹¹³	- 16' "	" " " - 50' - tree
	<i>Abies balsamea</i>	- 2" "	- 13' "	" " " - 15' - sapling
(c)	<i>Abies balsamea</i>	- 7" ³⁹	- 27' "	" " " - 25' - tree
	<i>Abies balsamea</i>	- 2" "	- 27' "	" " " - 10' - sapling
(d)	<i>Picea glauca</i>	- 21" ³⁴⁶	- 24' "	" " " - 75' - tree
	<i>Betula lutea</i>	- 2 1/2" "	- 21' "	" " " - 12' - sapling
T.D. = 79'				

Survey point # 8

- (a) *Picea glauca* - $9\frac{1}{2}$ " ⁷⁰ 12' from point; height - 50' - tree
Picea glauca - $2\frac{1}{2}$ " 27' " " - 13' - sapling
- (b) *Picea glauca* - 9" ⁶⁴ 6' " " - 45' - tree
Betula lutea - $2\frac{3}{10}$ " 11' " " - 18' - sapling
- (c) *Betula lutea* - 11" ⁹⁵ 24' " " - 45' - tree
Betula lutea - $2\frac{3}{4}$ " 26' " " - 15' - sapling
- (d) *Thuja occidentalis* - 7" ³⁹ 3' " " - 28' - tree
Picea glauca - 1" - 7' " " - 6' - sapling

T.D. = 45'

Stand # 2 July 11/54

quadrat # 5 at survey point # 9

Pteridium aquilinum

Abies balsamea -

Aralia nudicaulis

Acer rubrum seedling

Cornus canadensis

Salix triflorum

Aster macrophyllus

Fragaria virginiana

Rubus idaeus

Oxalis acetosella

Grasses. sp.

Linnaea borealis

Streptopus rodus

Maianthemum canadense

Carex sp.

- (a) - *Abies balsamea* - 5 1/2" ²⁴, 15' from point - height - 30' - tree
 Abies balsamea - 2", 20' " " " - 14' - sapling.
- (b) *Picea glauca* - 4" ¹³, 22' " " " - 20' - tree
 Picea glauca - 1", 23' " " " - 9' - sapling
- (c) - *Picea glauca* - 8" ⁵⁰, 32' " " " - 25' - tree
 Abies balsamea - 1", 29' " " " - 8' - sapling
- (d) *Betula papyrifera* - 13" ¹³³, 5' " " " - 45' - tree
 Picea glauca - 2 3/4", 4' " " " - 11' - sapling.
- T.D. = 74'

Survey point # 10

- (a) *Pinus glauca* - $8\frac{1}{2}$ " ⁵⁶ 24' from point. - height - 28' - tree
Abies balsamea - $1\frac{3}{4}$ " 11" " " " - 15' - sapling
- (b) *Pinus strobus* - 11" ⁹⁵ 20' " " " - 30' - tree
Abies balsamea - $2\frac{1}{4}$ " 10' " " " - 18' - sapling
- (c) *Betula papyrifera* $7\frac{1}{2}$ " ⁴⁴ 9' " " " - 40' - tree
Abies balsamea $1\frac{1}{2}$ " 23' " " " - 10' - sapling
- (d) *Abies balsamea* 3" 7' 3' " " " - 15' - tree
Abies balsamea $1\frac{1}{2}$ " 33' " " " - 10' - sapling.

T.D. = 56'

Whole stand badly budwormed about 25-30 yrs ago

Stand #2 July 11/54
 Quadrat #6 at survey point #11

Pteridium aquilinum
Cornus canadensis
Lycopodium obscurum
Aster macrophyllus
Salix triplinervis
Aralia nudicaulis
Grasses sp.
Maianthemum canadense
Rubus idaeus
Lycopodium lucidulum
Thalictrum boreale
Coptis groenlandicum
Rubus pubescens

(a) <i>Picea glauca</i>	13" ¹³³	6'	from point	height -	45'	- tree
<i>Abies balsamea</i>	2 1/2"	12'	" "	height -	11'	- sapling
(b) <i>Abies balsamea</i>	7 1/2" ⁴⁴	18'	" "	"	45'	- tree
<i>Abies balsamea</i>	1 1/2"	19'	" "	"	9'	- sapling
(c) <i>Abies balsamea</i>	5" ²⁰	5'	" "	"	32'	- tree
<i>Abies balsamea</i>	2"	10'	" "	"	20'	- sapling
(d) <i>Betula papyrifera</i>	8" ⁵⁰	6'	" "	"	40'	- tree
<i>Abies balsamea</i>	2 3/4"	18'	" "	"	15'	- sapling

T.D. = 35'

Survey point # 12

(a)	<i>Populus tremuloides</i>	- 4 1/4", 15'	4'	from point	height	45'	- tree
	<i>Abies balsamea</i>	- 1 3/4", 9'	"	"	"	15'	- sapling
(b)	<i>Populus tremuloides</i>	- 4 1/4", 15'	2'	"	"	45'	- tree
	<i>Abies balsamea</i>	- 1 3/4", 30'	"	"	"	11'	- sapling
(c)	<i>Populus tremuloides</i>	- 4", 13'	3'	"	"	40'	- tree
	<i>Picea glauca</i>	- 2", 8'	"	"	"	15'	- sapling
(d)	<i>Abies balsamea</i>	- 3", 7'	2'	"	"	18'	- tree
	<i>Abies balsamea</i>	- 2 1/4", 28'	"	"	"	10'	- sapling

T.D. = 11

Stand # 2 July 11/54
Quadrat # 7 at survey point # 13

Pteridium aquilinum
Cornus canadensis
Fuentalis borealis
Aralia nudicaulis
Maianthemum canadense
Dalibarda repens
Grasses of
Corylus cornuta

- (a) *Pinus strobus* 9" ⁶⁴, 8' from survey point, height = 35' - tree
Abies balsamea 2", 18' " " " height 11' - sapling
- (b) *Betula papyrifera* 15" ¹⁷⁷, 17' " " " height 45' - tree
Abies balsamea 2 1/2", 16' " " " height 15' - sapling
- (c) *Pinus strobus* 12" ¹¹³, 12' " " " height 40' - tree
Abies balsamea 1", 6' " " " height 6' - sapling
- (d) *Pinus strobus* 14" ¹⁵⁴, 16' " " " height 40' - tree
Abies balsamea 2 3/4", 21' " " " height 19' - sapling
- T.D. = 33'

Survey point # 14

- (a) *Pinus strobus* $3\frac{1}{2}"$ ⁹ 4' from point, height 15' - tree
Abies balsamea $1\frac{3}{4}"$ ¹ 4' " " " 10' - sapling
- (b) *Picea glauca*, 6" ²⁸ 10' from " " " 35' - tree
Abies balsamea - 1" ¹ 9' " " " 5' - sapling
- (c) *Betula papyrifera* 6" ²⁸ 3' " " " 40' - tree
Picea glauca $1\frac{1}{4}"$ ⁴ 7' " " " 6' - sapling
- (d) *Betula papyrifera* $6\frac{1}{4}"$ ³⁰ 7' " " " 35' - tree
Abies balsamea $1\frac{1}{4}"$ ¹ 7' " " " 8' - sapling

T.D. = 24'

Stand #2 July 11/54
 Quadrat #8 - Survey point 15
Pteridium aquilinum *Vacc. angustifolium*
Comus canadensis
Arabis nudicaulis
 Grass - sp.
Polygala paucifolia
Spiraea latifolia
Lycopodium obscurum
 Carex sp.
Polystichum juniperinum
Lycopodium clavatum

- (a) *Pinus strobus* 12" ¹¹³ - 28' from point, height - 30' - tree
Abies balsamea 1 ³/₄" - 23' " " " 12' - sapling
- (b) *Abies balsamea* - 4 ¹⁶/₂" 28' " " " 30' - tree
Abies balsamea - 1" 24' " " " 6' - sapling
- (c) *Picea glauca* - 11" ⁹⁵ 16' " " " 35' - tree
Abies balsamea - 2 ¹/₂" 26' " " " 12' - sapling
- (1) *Picea glauca* - 18" ²⁵⁵ 8' " " " 40' - tree
Picea glauca - 2 ¹/₄" 10' " " " 9' - sapling
- T.D. = 80'

Survey point #16

(a) *Pinus strobus* - 12" ¹¹³ 11' from point, height 30' - tree
Abies balsamea - 1 1/2" 11' " " 10' - sapling

(b) *Abies balsamea* - 4 1/2" ¹⁶ 6' " " 26' - tree
Abies balsamea 1" 28' " " 9' - sapling

(c) *Abies balsamea* - 5 1/2" ²⁴ 7' " " 26' - tree
Abies balsamea 1 1/2" 8' " " 10' sapling

(d) *Pinus strobus* - 20" ³¹⁴ 11' from point, " 30' - tree
Pinus pennsylvanica 1" 12' " " 10' - sapling

T.D. = 35'

Stand # 2 July 12/54

S Quadrat # 9 at survey point # 17

Cornus canadensis

Pteridium aquilinum

Polygala paucifolia

Maianthemum canadense

Polytrichum juniperinum

Juniperus borealis

Lycopodium clavatum

Eriogonum - white

Carex sp.

Acer rubrum - seedling

Vaccinium angustifolium

Abies balsamea - ^{young tree} seedling

- (a) *Pinus strobus* - 16" ²⁰ 18' from point, height - 30' - tree
Abies balsamea - 2" 8' " " " - 15' - sapling
- (b) *Abies balsamea* - 8" ⁵⁰ 18' " " " - 38' - tree
Abies balsamea - 1" 7' " " " - 9' - sapling
- (c) *Abies balsamea* - 5" ²⁰ 13' " " " - 25' - tree
Abies balsamea - 1 ³/₄" 8' " " " - 17' - sapling
- (d) *Pinus strobus* - 15" ¹⁷⁸ 9' " " " - tree
Abies balsamea - 1 ¹/₄" 5' " " " - sapling

T.D. = 58'

Survey point #18

- (a) *Picea mariana* - $3\frac{1}{2}$ " ⁹ - 11' from point, - height - 17' - tree
Picea mariana - 1" ¹ - 11' " " " - " - 9' - sapling
- (b) *Picea glauca* - 16" ²⁰ 9' " " " - " - 40' - tree
Abies balsamea - 2" ¹ - 18' " " " - " - 14' - sapling
- (c) *Picea mariana* - $9\frac{1}{4}$ " ⁶⁸ - 21' " " " - " - 40' - tree
Picea mariana - $2\frac{1}{2}$ " - 18' " " " - " - 12' - sapling
- (d) *Abies balsamea* - $4\frac{1}{2}$ " ¹⁶ - 18' " " " - " - 30' - tree
Abies balsamea - 2" - 30' " " " - " - 18' - sapling

On a slope, black spruce coming in

T.D. = 59'

Stand #2 July 12/54

Squadrat #10 at survey point #19.

Cornus canadensis

Lycopodium clavatum

Meridium aquilinum

Carex sp.

Tran sp.

Truentalis borealis

Polygala paucifolia

Nidanthemum canadense

Vaccinium angustifolium

Abies balsamea

- (a) *Pinus strobus* - 11" ⁹⁵ 12' from point - , height - 20' - tree
Picea glauca - 1 3/4" - 9' " " - , " - 10' - sapling
- (b) *Abies balsamea* - 5 1/2" ²⁴ 15' " " - , " - 28' - tree
Picea glauca - 2" , 27' " " - , " - 10' - sapling
- (c) *Picea glauca* - 8" ⁵⁰ 30' " " - , " - 25' - tree
Abies balsamea - 1 1/2" , 29' " " - , " - 12' - sapling
- (d) *Abies balsamea* - 10" ⁷⁹ 7' " " - , " - 30' - tree
Picea mariana - 1 1/2" , 7' " " - , " - 15' - sapling

T.D. = 64'

Survey point # 20.

- (a) *Pinus strobus* - 13" ¹³³ 9' from point, 28' height - tree
Populus trem. - 2 1/2" 24' " " 15' " sapling.
- (b) *Abies balsam.* - 5 1/2" ²⁴ 14' " " 22' " tree
Abies balsam. - 2 1/2" 34' " " 15' " sapling.
- (c) *Picea glauca* - 14" ¹⁵⁴ 18' " " 35' " tree
Picea glauca - 2 1/2" 23' " " 15' " sapling
- (d) *Pinus strobus* - 10" 79 13' " " 24' " tree
Picea mariana - 1 1/2" 23' " " 12' " sapling

Soil pit dug at survey point # 20

Litter (X) - 1"

Humus - 3/4"

Humus - 1"

A₁ - 1/2"

A₂ - 1-2"

A₃ - 1/8 - 1/4"

T.D. = 54'



Quadrat # 11 at Survey point # 21 in stand # 2 July 12/51

Viburnum pumilum *Vacc. angust.*
Rhodod. aquilinum *Populus trem.*
Dalebarda repens
Melospyron lineare
Polygala paucifolia
Carex sp.
Comus canadensis
Antennaria (sp) canadensis
Grass sp.
Dracopis borealis
Mananthum canadense

- (a) *Pinus strobus* 9" ⁶⁴ - 5' from point - height - 23' - tree
Larix laricina 1" - 11' " " - " 5' - sapling
- (b) *Pinus strobus* 18" ²⁵⁴ - 28' " " - " 35' - tree
Populus trem. 1" 26' " " - " 6' - sapling
- (c) *Abies balsamea* 6" ²⁸ - 12' " " - " 30' - tree
~~*Abies balsamea*~~ 2 1/4" 21' " " - " 19' - sapling
- (d) *Abies balsamea* 5" ²⁰ - 30' " " - " 30' - tree
Larix laricina 2 3/4" - 35' " " - " 15' - sapling
- T.D. = 78'

Point # 22

- (a) *Pinus strobus* - 15" ¹⁴⁷ - 26' from point - height 30' - Tree
Abies balsamea - 13" ⁴ - 6' " " - " 10' sapling
- (b) *Populus trem.* - 8 1/2" ⁵⁶ - 7' " " - " 40' Tree
Picea glauca - 1 1/2" - 6' " " - " 8' sapling
- (c) *Picea mariana* - 6 1/2" ³³ - 18' " " - " 30' Tree
Abies balsam. - 1" - 8' " " - " 13' sapling
- (d) *Abies balsam.* - 4" ¹³ - 8' " " - " 20' tree
Picea canadensis - 2" - 12' " " - " 13' sap.

T.D. = 59'

Stand # 2 July 12/54.

Quadrat # 12 at survey point # 23

Peridium aquilinum
Cornus canadensis
Lycopodium annotinum
Pieris lonicera
Galium aparine
Maianthemum canadense
Aralia nudicaulis
Lycopodium obscurum
Rubus idaeus
Polygala paucifolia
Calcegon struthium

Pop. trem
Picea glauca

- (a) *Abies balsamea* - $3\frac{1}{2}''^9$ - 4' from point - largest - 20' - tree
Abies balsamea - $1''$ - 4' " " - " 8' - sapling
- (b) *Pinus strobus* - $12''^{113}$ - 7' " " - " 30' - tree
Abies balsam - $2\frac{1}{4}''$ - 3' " " - " 18' - sapling
- (c) *Abies balsam* - $3\frac{1}{2}''^9$ - 9' " " - " 22' - tree
Picea mariana - $1''$ - 3' " " - " 9' - sap.
- (d) *Populus trem* - $4\frac{1}{2}''^{16}$ - 3' " " - " 40' - tree
Populus trem - $1\frac{3}{4}''$ - 9' " " - " 20' - sap.

T.D. = 23'

survey point # 24

- (a) *Pinus strobus* - 11" ⁹⁵ 21' from point - height - 28' - tree
Picea glauca - 2 1/2" - 30' " " " - 15' - sap.
- (b) *Picea glauca* - 11" ⁹⁵ 8' " " " - 40' - tree
Pop. Trem. 1 1/2" - 21' " " " - 18' - sap.
- (c) *Picea glauca* 13 1/2" ^{143 7/8} " " " - 50' - tree
Picea glauca 1" - 12' " " " - 6' - sap.
- (d) *Pinus strobus* 13" ¹³³ " " " - 30' - tree
Picea mariana 2" 15' " " " - 12' - sap.

T.D. = 43'

PROGRESS BOND
HOWARD SMITH

Quadrat # 73 - Survey point - 25

July 12/54 Haveling NE

Pteridium

Pop. trem.

Corylus

Brass. sp.

Carex sp.

Polytrichum jun.

Cladonia gracilis

Sturnalis

(a) *Picea glauca* 3" ⁸ - 7' from point, - height 12' - tree
Picea 1" - 27' - 8' sap.
Abies 2 1/2" 27' - 15' - sap.

(b) *Picea glauca* 8" ⁵⁰ - 35' - height 40' tree
Picea glauca 1 1/2" - 27' - 8' sap

(c) *Picea glauca* - 8" ⁵⁰ - 40' 30' tree
" " 1" - 10' 6' sap

(d) *Pop trem* 6" ²⁸ - 12' 40'
Picea glauca 1" 20' 6'
T.D. = 94'

- Survey point # 26 N.W. from previous point
- (a) *Abies balsamea* - $3\frac{1}{2}$ " ⁹ 3' from point, 30' in height - tree
Abies balsamea - $1\frac{1}{2}$ " 21' from " 10' " " - sap.
- (b) *Pinus strobus* - $13\frac{1}{2}$ " ¹³³ 6' " " 35' " " - tree
Abies balsamea - $2\frac{1}{2}$ " 11' " " 12' " " - sap.
- (c) *Populus tremuloides* - $13\frac{1}{2}$ " ¹⁴³ 24' " " 50' " " - tree
Abies balsamea - $2\frac{1}{2}$ " 11' " " 13' " " - sap.
- (d) *Picea glauca* - $13\frac{1}{2}$ " ¹³³ 6' " " 40' " " - tree
Picea glauca - 2" 30' " " 11' " " - sap.

T.D. = 39'

Quadrat #14 at survey point #27

Pteridium aquilinum
Aspidium kusantracum
Lycopodium obscurum
Polypodium gymnocarpium
Carex sp.
Brassica sp.
Cornus canadensis
Calcegon atherben

Populus tremuloides - seedling

- (a) *Picea glauca* - $7\frac{1}{2}"$, ⁴⁴18' from point, 28' tall, - tree
Abies balsamea - $1\frac{1}{4}"$, 7' " " " 10' " - sap.
- (b) *Picea glauca* - 12" 113 27' " " " 35' " - tree
Abies balsamea - 1" 22' " " " 8' " - sap.
- (c) *Picea glauca* - 13" 133 15' " " " 32' " - tree
Abies balsamea - 1" ' 34' " " " 6' " - sap.
- (d) *Picea glauca* - $4\frac{1}{2}"$ 16 9' " " " 15' " - tree
Abies balsamea - $1\frac{1}{2}"$, 5' " " " 9' " - sap.

T.D. = 69'

Survey point # 28

regl. sparse

- (a) *Populus tremuloides*. $12\frac{1}{2}$ " ¹²³ 13' from point, height 50' - tree
Picea glauca - 1" , 40' " " " 5' - sap
- (b) *Abies balsamea* - 5" ²⁰ 7' " " " 27' - tree
Abies balsamea - 1" , 16' " " " 9' - sap.
- (c) *Picea glauca* - 11" ⁹⁵ 9' " " " 40' - tree
Abies balsamea - 2" , 19' " " " 13' - sap.
- (d) *Picea glauca* - 10" ⁷⁹ 17' " " " 45' - tree
Picea glauca - $2\frac{1}{2}$ " , 15' " " " 12' - sap.

T.D. = 46'

Quadrat #15 - Survey point #29

Pteridium aquilinum *Conyza cornuta*

Arabis nuttalliana *Abies balsamea* - seedling

Cornus canadensis

Maianthemum canadense

Fuentalia borealis

Lycopodium obscurum

Lycopodium annotinum

Moss - spp.

- (a) *Pinus strobus* - 12" ¹¹³ 2' from point, 35' in height - tree
Abies balsamea - 1" - 3' " " 10' " " - sap.
- (b) *Pinus strobus* - 9" ⁶⁴ 12' " " 29' " " - tree
Abies balsamea - 1 1/2" 3' " " 8' " " - sap.
- (c) *Betula papyrifera* 8" ⁵⁰ 3' " " 50' " " - tree
Abies balsamea - 2" 12' " " 12' " " - sap.
- (d) *Pinus strobus* - 5 1/2" ²⁴ 15' " " 20' " " - tree
Abies balsamea - 1" 22' " " 8' " " - sap.

T.D. = 32'

Survey point # 30

- (a) *Abies balsamea* - $3\frac{1}{4}"$ ⁹, 3' from point, 24' in height - tree
Abies balsamea - 1" ⁹, 9' " " , 9' " " - sap.
- (b) *Abies balsamea* - $4"$ ¹³, 13' " " , 25' " " - tree
Abies balsamea - 1" ⁹, 9' " " , 8' " " - sap.
- (c) *Picea glauca* - $12"$ ¹¹³, 6' " " , 35' " " - tree
Abies balsamea - 1" ²⁵, 25' " " , 9' " " - sap.
- (d) *Abies balsamea* - $6"$ ²⁹, 9' " " , 35' " " - tree
Abies balsamea - $2"$ ¹², 12' " " , 13' " " - sap.

T.D. = 31'

Quadrat #16 at survey point #31

Pteridium aquilinum *Corylus cornuta*

Carex sp.

Brassica sp.

Polygala paucifolia

Aralia nudicaulis

Rumex crispus

Fycopodium obscurum

Cornus canadensis

Vaccinium angustifolium

Picea mariana - seedling

- (a) *Picea mariana* 7" ³⁹ 8' from point, 38' in height - tree
Picea mariana 1" 10' " " 7' " " - sap.
- (b) *Abies balsamea* 4" ¹³ 6' " " 16' " " - tree
Abies balsamea 1 1/2" 12' " " 10' " " - sap.
- (c) *Populus tremuloides* 7 1/2" ⁴⁴ 7' " " 40' " " - tree
Abies balsamea 2 1/2" 6' " " 15' " " - sap.
- (d) *Pinus strobus* - 14" ¹⁵⁴ 12' " " 40' " " - tree
Abies balsamea - 2" 18' " " 15' " " - sap.

T.D. = 33'

Survey point #32

- (a) *Picea glauca* - 12" ¹¹³, 8' from point, 40' in height. - tree
Abies balsamea - 2½", 14" " " , 18' " " - sap.
- (b) *Betula papyrifera* - 9" ⁶⁴, 13' " " , 41' " " - tree
Abies balsamea - 2" 30' " " , 12' " " - sap.
- (c) *Picea glauca* - 14" ¹⁵⁴, 18' " " , 40' " " - tree
Picea glauca - 1½", 15' " " , 10' " " - sap
- (d) *Pinus strobus* - 16" ²⁰¹, 10' " " , 36' " " - tree
Abies balsamea - 1" , 16' " " , 8' " " - sap

T.D. = 49'

Quadrat #17 at Norway point #33

Pteridium aquilinum

Cornus canadensis

Grass sp.

Carex sp.

Lycopodium clavatum

Hedera aurantiacum

Cladonia gracilis - brown

Vaccinium angustifolium

Lycopodium obscurum

clearing
60x60'

- (a) *Abies balsamea* - 8" ⁵⁰ 30' from point, 40' in height - tree.
Abies balsamea - 2" 12' " " 15' " " - saps.
- (b) *Betula papyrifera* - 8" ⁵⁰ 9' " " 35' " " - tree
Abies balsamea - 1 1/2" 7' " " 16' " " - saps.
- (c) *Abies balsamea* - 8" ⁵⁰ 13' " " 40' " " - tree
Abies balsamea - 2 1/2" 14' " " 19' " " - saps.
- (d) *Abies balsamea* - 4" 13 16' " " 25' " " - tree
Abies balsamea - 2 1/2" 8' " " 15' " " - saps.

T.D. = 68'

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Survey point # 34

- (a) *Picea glauca* - 11" ⁹⁵ 12' from point - 38' in height - tree
Abies balsamea - 1" ' 6' " " - 5' " " - sap
- (b) *Pinus strobus* - 10" ⁹⁵ 24' " " - 30' " " - tree
Pinus strobus - 2" ' 30' " " - 12' " " - sap.
- (c) *Abies balsamea* - 8" ⁵⁰ 18' " " - 39' " " - tree
Picea glauca - 2" ' 35' " " - 15' " " - sap.
- (d) *Picea glauca* - 7" ³⁹ 7' " " - 28' " " - tree
Abies balsamea - 1" ' 7' " " - 5' " " - sap

T.D. = 67'

Quadrat #18 at survey point #35

Aspidium aquilemum *Abies balsamea* - seedling

Cornus canadensis

Melampyrum lineare

Lycopodium obscurum

Grass sp.

Carex sp.

Maianthemum canadense

Dryopteris borealis

Polystichum juniperinum

Cladonia rangiferina

Cladonia gracilis

Coprinus groenlandicum

Hyopodium obscurum, var. *derivoides*

Soil pit dug

Litter - $\frac{1}{2}$ - 1"

Perman. $\frac{1}{8}$ "

Humus - 1"

A₁ - $\frac{1}{8}$ "

A₂ - 1"

no A₃

- (a) *Pinus strobus* - 16" ²⁰¹ 16' from point, height 35' - tree
Betula papyrifera 2 1/4" 31' " " " 18' - sap.
- (b) *Picea glauca* - 10 1/2" ⁸⁶ 12' " " " 35' - tree
Abies balsamea - 1 1/2" 20' " " " 11' - sap.
- (c) *Pinus strobus* - 13" ¹³³ 27' " " " 30' - tree
Picea glauca - 2" 3' " " " 14' - sap.
- (d) *Abies balsamea* - 4" ¹³ 12' " " " 20' - tree
Picea glauca - 2 1/2" 26' " " " 16' - sap.

Canopy at point - 0% T.D. = 67'

Survey point # 36.

- (a) *Abies balsamea*, - 5" ²⁰ 7' 6' from point, height 28' - tree
Picea glauca, - 2 1/2" 2' " " " 15' - sap
- (b) *Pinus strobus*, - 10 1/2" ⁸⁶ 7' " " " 29' - tree
Abies balsamea, - 1 1/2" 11' " " " 16' - sap.
- (c) *Petula papyrifera*, - 3" 7' 6' " " " 21' - tree
Abies balsamea, - 1" 13' " " " 7' - sap.
- (d) *Pinus strobus*, - 11" ⁹⁵ 16' " " " 30' - tree
Abies balsamea, - 2" 4' " " " 15' - sap.

T.D. = 35'

Quadrat #19. at Survey point #37

Pteridium aquilinum

Arachis nudicaulis

Lycopodium clavatum

Vaccinium myrtilloides

Vaccinium angustifolium

Maianthemum canadense

Cornus paniculata

Fraxinus

- (a) *Betula papyrifera* - $9\frac{1}{2}"$ ⁷⁰ - 12' from point, height - 40' - tree
Picea mariana - $1\frac{1}{2}"$, 19' " " " 14' - sap.
- (b) *Picea glauca* - $11"$ ⁹⁵ 15' " " " 45' - tree
Picea mariana - $2\frac{3}{4}"$, 17' " " " 20' - sap.
- (c) *Pinus strobus* - $6"$ ²⁸ 9' " " " 21' - tree
Abies balsamea - $2\frac{1}{2}"$, 7' " " " 18' - sap.
- (d) *Betula papyrifera* - $8\frac{1}{2}"$ ⁵⁶ 6' " " " 40' - tree
Picea mariana - $1"$, 9' " " " 7' - sap.

T.D. = 42'

Survey point # 38.

- (a) *Petula papyrifera* - $9\frac{1}{2}$ " ⁷⁰ 9' from point; height 45' tree
Picea mariana - $1\frac{1}{2}$ " 6' " " " 10' - sap
- (b) *Abies balsamea* - $6\frac{1}{4}$ " ²⁸ 13' " " " 28' - tree
Petula papyrifera - $2\frac{1}{4}$ " 22' " " " 23' - sap
- (c) *Pinus strobus* - $8\frac{1}{4}$ " ⁵⁰ 12' " " " 25' - tree
Abies balsamea - $13\frac{1}{4}$ " 13' " " " 19' - sap
- (d) *Pinus strobus* - $11\frac{1}{2}$ " ¹⁰⁴ 12' " " " 26' - tree
Picea glauca - $2\frac{1}{2}$ " 16' " " " 17' sap

T.D. = 46'

Quadrat # 20 at survey point # 39

Heridium aquilinum

Aralia nudicaulis

Vaccinium myrtillodes

Aster macrophyllus

Cornus canadensis

Polygala paucifolia

Trientalis borealis

Mananthemum canadensis

Carex sp.

Brass sp.

Calcegon Shreberi

Corylus cornuta

Acer rubrum seedlings

(a) *Pinus remota* - 8 1/2" ⁵⁶ 9' from point, height - 29' - tree
Populus tremuloides 2 1/2" 10' " " " - 27' - sap.

(b) *Betula papyrifera* 5" ²⁰ 1' " " " - 31' - tree
Abies balsamea 2 3/4" 18' " " " - 19' - sap.

(c) *Abies balsamea* 4" ¹³ 11' " " " - 17' - tree
Abies balsamea - 2" 14' " " " - 17' - sap.

(d) *Picea glauca* - 6" ²⁸ 13' " " " - 17' - tree
Betula papyrifera - 12" 10' " " " - 21' - sap.

T.D. = 34'

